

119 Sequence Listing.ST25  
SEQUENCE LISTING

<110> Sung, Moon-Hee  
Poo, Ha Ryoung  
Lee, Jong-Soo  
Jung, Chang-Min  
Hong, Seong-Pyo  
Kim, Chul-Joong  
Park, Sue-nie  
Pyo, Hyun-mi

<120> VECTOR FOR ANTI-HPV VACCINE AND TRANSFORMED MICROORGANISM BY THE VECTOR

<130> 4240-119

<140> Not yet assigned

<141> 2005-04-01

<150> KR 10-2002-0063378

<151> 2002-10-17

<160> 11

<170> PatentIn version 3.2

<210> 1

<211> 1182

<212> DNA

<213> Bacillus subtilis

<400> 1

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| atgggctggt tactcattat agcctgtgct gtcatactgg tcatcggaat attagaaaaa  | 60   |
| cgacgacatc agaaaaacat tgatgccctc cctgttcggg tgaatattaa cggcatccgc  | 120  |
| ggaaaatcga ctgtgacaag gctgacaacc ggaatattaa tagaagccgg ttacaagact  | 180  |
| gttggaaaaa caacaggaac agatgcaaga atgatttact gggacacacc ggaggaaaag  | 240  |
| ccgattaaac ggaaacctca ggggccgaat atcggagagc aaaaagaagt catgagagaa  | 300  |
| acagtagaaa gaggggctaa cgcgattgtc agtgaatgca tggctgttaa cccagattat  | 360  |
| caaatcatct ttcaggaaga acttctgcag gccaatatcg gcgtcattgt gaatgtttta  | 420  |
| gaagaccata tggatgtcat ggggccgacg cttgatgaaa ttgcagaagc gtttaccgct  | 480  |
| acaattcctt ataatggcca tcttgtcatt acagatagtg aatataccga gttctttaaa  | 540  |
| caaaaagcaa aagaacgaaa cacaaaagtc atcattgctg ataactcaaa aattacagat  | 600  |
| gagtattttac gtaattttga atacatggta ttccctgata acgcttctct ggcgctgggt | 660  |
| gtggctcaag cactcggcat tgacgaagaa acagcattta agggaatgct gaatgcgccg  | 720  |
| ccgatccgg gagcaatgag aattcttccg ctgatcagtc cgagcgagcc tgggcacttt   | 780  |
| gttaatgggt ttgccgcaaa cgacgcttct tctactttga atatatggaa acgtgtaaaa  | 840  |
| gaaatcggtt acccgaccga tgatccgatc atcatcatga actgccgcgc agaccgtgtc  | 900  |
| gatcggacac agcaattcgc aaatgacgta ttgccttata ttgaagcaag tgaactgac   | 960  |
| ttaatcggtg aaacaacaga accgatcgta aaagcctatg aagaaggcaa aattcctgca  | 1020 |
| gacaaactgc atgacctaga gtataagtca acagatgaaa ttatggaatt gttaaagaaa  | 1080 |
| agaatgcaca accgtgtcat atatggcgtc ggcaatattc atggtgccgc agagccttta  | 1140 |

119 Sequence Listing.ST25  
attgaaaaaa tccacgaata caaggtaaag cagctcgtaa gc 1182

<210> 2  
<211> 447  
<212> DNA  
<213> Bacillus subtilis

<400> 2  
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tttaatcagc cggctctttat ttactttgtt ttgctagtga gcttgctcac ttatgttatc 180  
gtgaaatacg gtttatccaa atttatgatt ttgtacggac gcagaaaatt cgctgccatg 240  
ctgataacag ggatcgtcct aaaaatcgcg ttgatttttc tatacccgat tgtaccattt 300  
gaaatcgtag aatttcgagg aatcggcatc atcgtgccag gtttaattgc caataccatt 360  
cagaaacaag gtttaaccat tacgttcgga agcacgctgc tattgagcgg agcgaccttt 420  
gctatcatgt ttgtttacta ctttaatt 447

<210> 3  
<211> 1140  
<212> DNA  
<213> Bacillus subtilis

<400> 3  
atgaaaaaag aactgagctt tcatgaaaag ctgctaaagc tgacaaaaaa gcaaaaaaag 60  
aaaaccaata agcacgtatt tattgccatt ccgatcgttt ttgtccttat gttcgctttc 120  
atgtgggagg gaaaagcggg aacgccgaag gtcaaaacgt attctgacga cgtactctca 180  
gcctcatttg taggcgatat tatgatggga cgctatgttg aaaaagtaac ggagcaaaaa 240  
ggggcagaca gtatttttca atatgttgaa ccgatcttta gagcctcggg ttatgtagca 300  
ggaaactttg aaaacccggg aacctatcaa aagaattata aacaagcaga taaagagatt 360  
catctgcaga cgaataagga atcagtgaag gtcttgaagg atatgaattt cacggttctc 420  
aacagcgcca acaaccacgc aatggattac ggcgttcagg gcatgaaaga tacgcttgga 480  
gaatttgtag agcaaaacct tgatatcggt ggagcgggat acagcttaag tgatgcgaaa 540  
aagaaaattt cgtaccagaa agtcaacggg gtaacgattg caacgcttgg ctttaccgat 600  
gtgtccggga aaggtttcgc ggctaaaaag aatacgccgg gcgtgctgcc cgcagatcct 660  
gaaatcttca tccctatgat ttcagaagcg aaaaaacatg ctgacattgt tgttgtagcag 720  
tcacactggg gccaaagagta tgacaatgat ccaaacgacc gccagcgcca gcttgcaaga 780  
gccatgtctg atgcggggagc tgacatcatc gtcggccatc atccgcacgt cttagaaccg 840  
attgaagtat ataacggaac cgtcattttc tacagcctcg gcaactttgt ctttgaccaa 900  
ggctggacga gaacaagaga cagtgcactg gttcagtatc acctgaagaa aaatggaaca 960  
ggccgctttg aagtgcacac gatcgatatc catgaagcga cacctgcacc tgtgaaaaaa 1020  
gacagcctta aacagaaaac cattattcgc gaactgacga aagactctaa tttcgcttgg 1080  
aaagtagaag acggaaaact gacgtttgat attgatcata gtgacaaact aaaatctaaa 1140

# 119 Sequence Listing.ST25

|       |                                    |    |
|-------|------------------------------------|----|
| <210> | 4                                  |    |
| <211> | 26                                 |    |
| <212> | DNA                                |    |
| <213> | Artificial Sequence                |    |
| <220> |                                    |    |
| <223> | Synthetic Construct                |    |
| <400> | 4                                  |    |
|       | cgcggatcct ctctttggct gcctag       | 26 |
| <210> | 5                                  |    |
| <211> | 31                                 |    |
| <212> | DNA                                |    |
| <213> | Artificial Sequence                |    |
| <220> |                                    |    |
| <223> | Synthetic Construct                |    |
| <400> | 5                                  |    |
|       | ggaaagcttt tattacagct tacgtttttt g | 31 |
| <210> | 6                                  |    |
| <211> | 24                                 |    |
| <212> | DNA                                |    |
| <213> | Artificial Sequence                |    |
| <220> |                                    |    |
| <223> | Synthetic Construct                |    |
| <400> | 6                                  |    |
|       | cgcggatccc caggaggtat gcat         | 24 |
| <210> | 7                                  |    |
| <211> | 29                                 |    |
| <212> | DNA                                |    |
| <213> | Artificial Sequence                |    |
| <220> |                                    |    |
| <223> | Synthetic Construct                |    |
| <400> | 7                                  |    |
|       | ggaaagcttt tatggtttct gagaacaga    | 29 |
| <210> | 8                                  |    |
| <211> | 29                                 |    |
| <212> | DNA                                |    |
| <213> | Artificial Sequence                |    |
| <220> |                                    |    |
| <223> | Synthetic Construct                |    |
| <400> | 8                                  |    |
|       | ctgggatccc aaggtatggt gcccgtttg    | 29 |
| <210> | 9                                  |    |
| <211> | 30                                 |    |
| <212> | DNA                                |    |
| <213> | Artificial Sequence                |    |
| <220> |                                    |    |
| <223> | Synthetic Construct                |    |
| <400> | 9                                  |    |

# 119 Sequence Listing.ST25

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30

<210> 10

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<400> 10

gcacatatgt tcggatcaga tttatacatc

30

<210> 11

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<400> 11

ctcggatcct ttagatttta gtttgcact

30

## Sequence Listing

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<110> BIOLEADERS CORPORATION  
 KOREA RESEARCH INSTITUTE OF BIOSCIENCE AND BIOTECHNOLOGY  
 SUNG, Moon-Hee  
 POO, Ha-Ryoung  
 LEE, Jong-Soo  
 JUNG, Chang-Min  
 HONG, Seung-Pyo  
 KIM, Chul-Joong  
 PARK, Sue-nie  
 PYO, Hyun-mi

<120> VECTOR FOR ANTI-HPV VACCINE AND TRANSFORMED MICROORGANISM BY THE VECTOR

<130> E03-004

<150> KR10-2002-0063378  
 <151> 2002-10-17

<160> 11

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<210> 1  
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 <212> DNA  
 <213> Bacillus subtilis

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 cgacgacatc agaaaaacat tgatgccctc cctgttcggg tgaatattaa cggcatccgc 120  
 ggaaaatcga ctgtgacaag gctgacaacc ggaatattaa tagaagccgg ttacaagact 180  
 gttggaaaaa caacaggaac agatgcaaga atgatttact gggacacacc ggaggaaaag 240  
 ccgattaaac ggaaacctca ggggccgaat atcggagagc aaaaagaagt catgagagaa 300  
 acagtagaaa gaggggctaa cgcgattgtc agtgaatgca tggctgttaa cccagattat 360

## Sequence Listing

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caaatcatct ttcaggaaga acttctgcag gccaatatcg gcgtcattgt gaatgtttta      420
gaagaccata tggatgtcat ggggccgacg cttgatgaaa ttgcagaagc gtttaccgct      480
acaattcctt ataatggcca tcttgtcatt acagatagtg aatataccga gttcttttaa      540
caaaaagcaa aagaacgaaa cacaaaagtc atcattgtcg ataactcaa aattacagat      600
gagtatttac gtaattttga atacatggta ttccctgata acgcttctct ggcgctgggt      660
gtggctcaag cactcggcat tgacgaagaa acagcattta agggaatgct gaatgcgccg      720
ccagatccgg gagcaatgag aattcttccg ctgatcagtc cgagcgagcc tgggcacttt      780
gttaatgggt ttgccgcaa cgacgcttct tctactttga atatatggaa acgtgtaaaa      840
gaaatcggtt acccgaccga tgatccgata atcatcatga actgccgcgc agaccgtgtc      900
gatcggacac agcaattcgc aaatgacgta ttgccttata ttgaagcaag tgaactgac      960
ttaatcggtg aaacaacaga accgatcgta aaagcctatg aagaaggcaa aattcctgca     1020
gacaaactgc atgacctaga gtataagtca acagatgaaa ttatggaatt gttaaagaaa     1080
agaatgcaca accgtgtcat atatggcgtc ggcaatatc atggtgccgc agagccttta     1140
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<210>      2
<211>     447
<212>      DNA
<213>      Bacillus subtilis

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<400>      2
atgttcggat cagatttata catcgacta attttagggt tactactcag tttaattttt      60
gcggaaaaaa cagggatcgt gccggcagga cttgtgttac cgggatattt aggacttgtg     120

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## Sequence Listing

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|   |     |
|---|-----|
| tttaatcagc cggctctttat ttacttgtt ttgctagtga gcttgctcac ttatgttata | 180 |
| gtgaaatacg gtttatccaa atttatgatt ttgtacggac gcagaaaatt cgctgccatg | 240 |
| ctgataacag ggatcgtcct aaaaatcgcg ttgtatttc tataccogat tgtaccattt  | 300 |
| gaaatcgcag aatttcgagg aatcggcatc atcgtgccag gtttaattgc caataccatt | 360 |
| cagaacaag gtttaaccat tacgttcgga agcacgctgc tattgagcgg agcgacctt   | 420 |
| gctatcatgt ttgtttracta cttaatt                                    | 447 |

<210> 3  
 <211> 1140  
 <212> DNA  
 <213> *Bacillus subtilis*

|   |     |
|---|-----|
| <400> 3<br>atgaaaaaag aactgagctt tcatgaaaag ctgctaagc tgacaaaaca gcaaaaaaag | 60  |
| aaaaccaata agcacgtatt tattgccatt ccgatcgttt ttgtccttat gttcgcttcc           | 120 |
| atgtgggcgg gaaaagcgga aacgccgaag gtcaaacgt attctgacga cgtactctca            | 180 |
| gcctcatttg taggcgatat tatgatggga cgtatgttg aaaaagtaac ggagcaaaaa            | 240 |
| ggggcagaca gtatTTTTCA atatgttgaa ccgatcttta gagcctcgga ttatgtagca           | 300 |
| ggaaactttg aaaacccggt aacctatcaa aagaattata aacaagcaga taaagagatt           | 360 |
| catctgcaga cgaataagga atcagtgaag gtcttgaagg atatgaattt cacggttctc           | 420 |
| aacagcgcca acaaccacgc aatggattac ggcgttcagg gcatgaaaga tacgcttgga           | 480 |
| gaatttgca agcaaaacct tgatatcgtt ggagcgggat acagcttaag tgatgcgaaa            | 540 |
| aagaaaattt cgtaccagaa agtcaacggg gtaacgattg caacgcttgg ctttaccgat           | 600 |
| gtgtccggga aaggtttcgc ggctaaaaag aatacgccgg gcgtgctgcc cgcagatcct           | 660 |

## Sequence Listing

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|  |      |
|--|------|
| gaaatcttca tccctatgat ttcagaagcg aaaaaacatg ctgacattgt tgttgtgcag  | 720  |
| tcacactggg gccaaagagta tgacaatgat ccaaacgacc gccagcgcca gcttgcaaga | 780  |
| gccatgtctg atgcgggagc tgacatcatc gtcggccatc atccgcacgt cttagaaccg  | 840  |
| attgaagtat ataacggaac cgtcattttc tacagcctcg gcaactttgt ctttgaccaa  | 900  |
| ggctggacga gaacaagaga cagtgcactg gttcagtatc acctgaagaa aaatggaaca  | 960  |
| ggcgcgtttg aagtgcaccc gatcgatatc catgaagcga cacctgcacc tgtgaaaaaa  | 1020 |
| gacagcctta aacagaaaac cattattcgc gaactgacga aagactctaa tttagcttgg  | 1080 |
| aaagtagaag acggaaaact gacgtttgat attgatcata gtgacaaact aaaatctaaa  | 1140 |
|  | 1140 |

<210> 4  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer

|                             |    |
|-----------------------------|----|
| <400> 4                     |    |
| cgcgatcct ctctttggct gcctag | 26 |

<210> 5  
 <211> 31  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer



## Sequence Listing

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<400> 5  
ggaaagcttt tattacagct tacgtttttt g 31

<210> 6  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 6  
cgcggatccc caggaggtat gcat 24

<210> 7  
<211> 29  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 7  
ggaaagcttt tatggtttct gagaacaga 29

<210> 8  
<211> 29  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

## Sequence Listing

<400> 8

ctgggatccc aaggtatggt gcccgtttg

29

<210> 9

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 9

tgaagcttat taggacgatg ggatgggaat

30

<210> 10

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 10

gcacatatgt tcggatcaga ttatacatc

30

<210> 11

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

## Sequence Listing

<400> 11

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